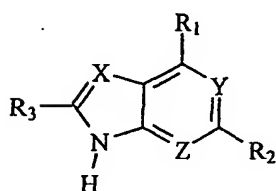


CLAIMS

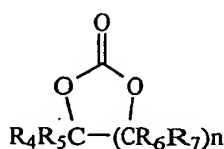
What is claimed is:

1. A method of preparing a compound according to Structure 3 comprising:

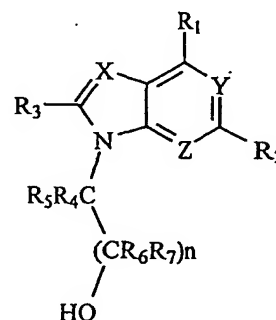
reacting a heterocyclic base according to Structure 1 with a compound according to
 5 Structure 2 in dimethylacetamide to form a product according to Structure 3;



Structure 1



Structure 2



Structure 3;

wherein X, Y and Z are independently N or CR, with R being H, halogen, OH, NH₂,
 10 or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or alkaryl;

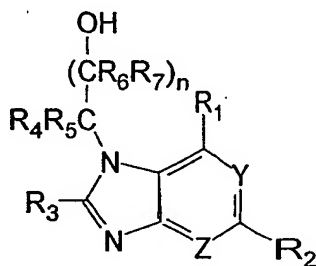
wherein R₁, R₂, R₃, R₄, R₅, R₆, and R₇ are independently H, halogen, OH, NH₂,
 CO(NH₂), CNH(NH₂), N₃, or substituted or unsubstituted alkyl, alkenyl,
 alkynyl, aryl, or alkaryl;

wherein n is an integer between 1 and 3; and

15 isolating Structure 3 from the dimethylacetamide solvent using isopropanol or tert-
 butylmethylether.

2. The method of claim 1 wherein X, Y and Z are N, and wherein R₁ is NH₂, R₂ and R₃ are H.
3. The method of claim 1 wherein R₄, R₅, R₆, and R₇ are H, and wherein n is 1.
4. The method of claim 1 wherein Structure 3 is isolated from the dimethylacetamide
 20 solvent using isopropanol.

5. The method of claim 1 wherein the step of reacting includes heating of the heterocyclic base according to Structure 1 and the compound according to Structure 2 to a temperature of no less than 150 centigrade.
6. The method of claim 1 wherein the step of reacting includes heating of the heterocyclic base according to Structure 1 and the compound according to Structure 2 to a temperature of no less than 160 centigrade.
7. The method of claim 1 wherein the step of reacting is performed in the presence of a basic catalyst.
8. The method of claim 7 wherein the basic catalyst is NaOH.
9. The method of claim 1 wherein X is N, and wherein the step of reacting the heterocyclic base according to Structure 1 with the compound according to Structure 2 further leads to an N7-alkylated byproduct according to Structure 4

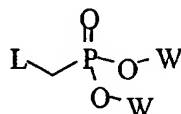


Structure 4.

10. The method of claim 9 wherein the step of reacting the heterocyclic base with the compound gives a total yield of the product and the N7-alkylated byproduct of at least 82%, and wherein about 98% of the total yield is the product and wherein about 1% of the total yield is the N7-alkylated byproduct.
11. The method of claim 9 wherein the step of reacting the heterocyclic base with the compound gives a total yield of the product and the N7-alkylated byproduct of at least 87%, and wherein about 97% of the total yield is the product and wherein about 1.1% of the total yield is the N7-alkylated byproduct.
12. The method of claim 9 wherein the step of reacting the heterocyclic base with the compound gives a total yield of the product and the N7-alkylated byproduct of at

least 91%, and wherein about 97% of the total yield is the product and wherein about 1.3% of the total yield is the N7-alkylated byproduct.

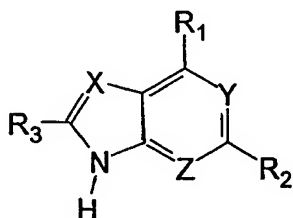
13. The method of claim 1 wherein the heterocyclic base is present in the dimethylacetamide at a concentration of up to 220mM.
- 5 14. The method of claim 1 wherein the heterocyclic base is present in the dimethylacetamide at a concentration of up to 270mM.
15. The method of claim 1 further comprising reacting the product according to Structure 3 with a phosphonate.
16. The method of claim 15 wherein the phosphonate has a structure according to
- 10 Structure 5



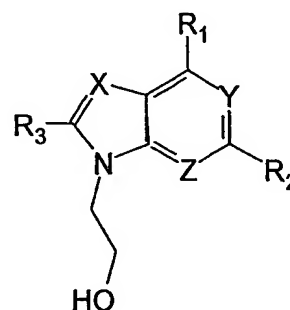
Structure 5

wherein L is a leaving group, and wherein W is a protecting group of the oxygen.

- 15 17. The method of claim 16 wherein L is a tosyl group and wherein W is ethyl group.
18. A method of preparing a compound according to Structure 3 comprising:
reacting a heterocyclic base according to Structure 1 in a solvent with ethylene oxide
to form a product according to Structure 3;



Structure 1



Structure 3

wherein X, Y and Z are independently N or CR, with R being H, halogen, OH, NH₂,
or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl, or alkaryl; and

wherein R₁, R₂, and R₃ are independently H, halogen, OH, NH₂, CO(NH₂),
CNH(NH₂), N₃, or substituted or unsubstituted alkyl, alkenyl, alkynyl, aryl,
or alkaryl.

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The method of claim 17 wherein the solvent is dimethylacetamide.